

Application No. 10/509,191  
Attorney Docket No. 2002B039A

### **Amendment to the Claims**

This **Listing of Claims** will replace all prior versions, and listings, of claims in the application.

#### **Listing of Claims:**

Claim 1 -12 (cancelled)

Claim 13 (previously presented): A catalyst composition comprising:

- (a) a support;
- (b) a first metal component comprising rhodium;
- (c) a second metal component comprising indium; and
- (d) a third metal component comprising a metal different from those of said first and second components and selected from Groups 1 to 15 of the Periodic Table of Elements,

wherein at least said first and second metal components are predominantly contained in an outer surface layer of the support having a depth of not more than 300 microns.

Claim 14 -15 (Cancelled)

Claim 16 (Original): The catalyst composition of claim 13 wherein the depth of said outer surface layer of the support is not more than 100 microns.

Claim 17 (currently amended): The catalyst composition of claim 13 wherein said third metal component is also predominantly contained in said outer surface layer of the support having a depth of not more than 300 microns.

Claim 18 (Original): The catalyst composition of claim 13 and comprising from about 0.01% to about 10% of rhodium by weight of the total catalyst composition including the support.

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Claim 19 (Original): The catalyst composition of claim 13 and comprising from about 0.04% to about 5% of rhodium by weight of the total catalyst composition including the support.

Claim 20 (previously presented): The catalyst composition of claim 13 and comprising from about 0.01 wt% to about 30 wt% indium by weight of the total catalyst composition including the support.

Claim 21 (previously presented): The catalyst composition of claim 13 and comprising from about 0.04 wt% to about 20 wt% indium by weight of the total catalyst composition including the support.

Claim 22-24 (Cancelled)

Claim 25 (Original): The catalyst composition of claim 13 and comprising from about 0.04% to about 10% of indium by weight of the total catalyst composition including the support.

Claim 26 (Original): The catalyst composition of claim 13 and comprising from about 0.01% to about 50% of the metal of the third metal component by weight of the total catalyst composition including the support.

Claim 27 (Original): The catalyst composition of claim 13 and comprising from about 0.05% to about 30% of the metal of the third metal component by weight of the total catalyst composition including the support.

Claim 28 (Original): The catalyst composition of claim 13 wherein said third component comprises at least one metal selected from Groups 8 to 10 of the Periodic Table of Elements.

Claim 29 (Original): The catalyst composition of claim 13 wherein said third component is selected from one or more of iron, ruthenium and cobalt.

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Claim 30 (Original): The catalyst composition of claim 29 wherein the third component is iron and the catalyst composition comprises from about 0.05% to about 30% of iron by weight of the total catalyst composition including the support.

Claim 31 (Original): The catalyst composition of claim 29 wherein the third component is iron and the catalyst composition comprises from about 0.1% to about 20% of iron by weight of the total catalyst composition including the support.

Claim 32 (Original): The catalyst composition of claim 29 wherein the third component is cobalt and the catalyst composition comprises from about 0.05% to about 30% of cobalt by weight of the total catalyst composition including the support.

Claim 33 (Original): The catalyst composition of claim 29 wherein the third component is cobalt and the catalyst composition comprises from about 0.1% to about 25% of cobalt by weight of the total catalyst composition including the support.

Claim 34 (Original): The catalyst composition of claim 29 wherein the third component is ruthenium and the catalyst composition comprises from about 0.05% to about 10% of ruthenium metal by weight of the total catalyst composition including the support.

Claim 35 (Original): The catalyst composition of claim 29 wherein the third component is ruthenium and the catalyst composition comprises from about 0.1% to about 5% of ruthenium metal by weight of the total catalyst composition including the support.

Claim 36 (currently amended): A method of making a catalyst composition, the method comprising:

- (a) applying a rhodium compound to a surface layer of a support having a depth of not more than 300 microns;
- (b) applying an indium compound to said a surface layer of the support having a depth of not more than 300 microns; and
- (c) applying a compound of a third metal different from rhodium and from indium and selected from Groups 1 to 15 of the Periodic Table of Elements to the support.

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Claim 37 (previously presented): The method of claim 36 wherein said third metal compound is applied to the support before either the rhodium compound or the indium compound.

Claim 38 (Currently Amended): The method of claim 36 wherein the indium compound is applied to the support either concurrently with or before the rhodium compound.

Claim 39 (Original): The method of claim 36 wherein at least one of (a), (b) and (c) is effected by an impregnation, precipitation, slurry mixing or coating step.

Claim 40-41 (Cancelled)

Claim 42 (Original): The method of claim 36 wherein said third metal selected from Groups 8 to 10 of the Periodic Table of Elements.

Claim 43 (Original): The method of claim 36 wherein said third metal is selected from one or more of iron, ruthenium and cobalt.

Claim 44 (Original): The method of claim 36 and, after (a) and/or (b) and/or (c), calcining the support at a temperature of about 100°C to about 600°C.

Claim 45 (Original): The method of claim 36 and, after (a), (b) and (c), treating the calcined support in a reducing atmosphere at a temperature in excess of 200°C.

Claim 46 (Withdrawn): A process for selectively removing alkynes or diolefins from a feedstock also containing olefins, the process comprising contacting the feedstock with hydrogen in the presence of a catalyst composition made by the method of claim 36.

Claim 47 (Withdrawn): A process for selectively removing alkynes or diolefins from a feedstock also containing olefins, the process comprising contacting the feedstock with hydrogen in the presence of a catalyst composition as claimed in claim 1.

Claim 48 (Withdrawn): The process of claim 47 wherein the alkynes or diolefins have 2 to 4 carbon atoms and the feedstock also contains C<sub>2</sub> to C<sub>4</sub> olefins.

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Claim 49 (Withdrawn): The process of claim 47 wherein said contacting is conducted at a temperature of from about 20°C to about 150°C, a pressure of from about 690 kPa to 4100 kPa, and a molar ratio of hydrogen to alkynes and diolefins of from about 1 to about 1000.

Claim 50 (Withdrawn): The process of claim 47 wherein said contacting is conducted at a temperature of from about 30°C to about 100°C, a pressure of from about 1400 kPa to 3400 kPa, and a molar ratio of hydrogen to alkynes and diolefins of from about 1.1 to about 800.

Claim 51 (new): The process of claim 36, wherein said third metal component is predominantly contained in said outer surface layer of the support having a depth of not more than 300 microns.

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### **Support for the Amendment**

Claim 17 has been amended to clarify that the surface layer is that having a depth of not more than 300 microns. This is supported, *inter alia*, by paragraph [0029] of the specification as originally filed. See also discussion of support for Claim 36, below.

Claim 36 has been amended strictly to clarify that in clause (b), the "said surface layer" in the previous statement of the claim is the surface layer of the support having a depth of not more than 300 microns set forth in clause (a). Support for the metal in clause (b) being applied such that it has a depth of not more than 300 microns is found *inter alia* in paragraph [0029] of the specification as originally filed.

New Claim 51 is believed supported by Claim 17, as set forth above.

It is believed that there is no possibility of new matter.